National Institute of Environmental Health Sciences

Global climate change and implications for disease emergence

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Abstract:

The early consequences of global climate change (GCC) are well documented. However, future impacts on ecosystem health, and on the health of humans, domestic animals, and wildlife, are much less well understood. Evidence of increasing frequency of extreme weather events (the 2003 trans-European heat wave, extended droughts in Australia and South America), of geographic changes in vector-borne disease (bluetongue and hanta viruses emerging in northern Europe, dengue virus expanding in central and northern America), and of altered animal behavioral responses (changes in bird migration patterns and fishery numbers) warrants action. To make valid choices, however, practitioners and decision makers must understand what is known about GCC and what is only theory. There will be a multitude of microbial, vector, and host responses to climate change, for example, and not all organisms will respond similarly or across equal time scales. Unfortunately, for many organisms and ecosystems the scientific community has a relatively poor understanding of current effectors and balances, making it problematic to describe the current situation, let alone to validate future predictions. The need for enhanced basic research and systematic surveillance programs is obvious, but putting such programs into place is daunting. However, the threats are real and fast approaching. What is done in the next few years may be decisive, whether for the good or the ill of all.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Extreme Weather Event, Temperature

Temperature: Extreme Heat

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Vectorborne Disease, Zoonotic Disease

Vectorborne Disease: General Vectorborne

Zoonotic Disease: General Zoonotic Disease

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Low Socioeconomic Status

Resource Type: ☑

format or standard characteristic of resource

Review

Timescale: ☑

time period studied

Time Scale Unspecified